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*Circular as to Petroleum, Kerosene, &c.*

OFFICE OF NEW JERSEY STATE BOARD OF HEALTH, }  
TRENTON, June 20th, 1882. }



The Legislature of New Jersey, at its last session, passed a law in reference to the use of "petroleum or coal oil for lighting and illuminating purposes" (see ch. 168, laws of 1882.) In the Second Report of the Board of Health (1878), pages 16-22, and the Fourth Report, (1880,) pages 25-28, and the Fifth Report, pages 22 and 106, the need of legislation upon the subject is illustrated. These are but items in the records of destruction of human life which has occurred from a substance which is safe and valuable for lighting purposes, if properly prepared. A careful estimate has placed the number of deaths from kerosene in the United States as high as 6,000 in a single year. Fire and destruction of property often result. The law which has been passed is the extreme limit of leniency, and its value depends on its rigid enforcement. We have the assurance of the co-operation of many of the manufacturers, and only need the aid of Local Health Boards and retail dealers to make it fully operative.

It will be the duty of all Local Boards of Health to see to it that the people in their respective districts are protected in the manner and to the degree which the law provides. Besides the notice given by the State Board of Health and in the newspapers, it will be wise for Local Boards to send copies of this circular, which can be had on application by postal to us, to all venders of or dealers in illuminating oil in their respective districts.

Section first of the act holds all dealers responsible that the oil which they are selling for household illuminating purposes, shall be proper for use as certified by the test and method of testing herewith adopted. Any person who can prove that he has bought oil of a less grade "for inside light" may bring suit. Sections fourth and fifth give, in addition, the power to those named therein to enter and procure the oil for the special purpose of test. In such cases the vender "may be enjoined and prohibited" by special notice, but this does not prevent action without notice by those who have purchased for actual use for lighting purposes. Purchasers of oils to be sold in this State, should have the guaranty that the oils purchased are such as will answer the test herein given and should not, when purchasing from refiners outside the State, rely upon the brand, but ask the written guaranty of the dealer.

If imperfect oils are brought into this State, not in accord with this law, we shall do all in our power, by exposure and prohibition of sale, to expose this wrong against human life.

The following are the means of ascertaining whether or not petroleum or kerosene, to be sold for lighting or illuminating purposes, is of the character required by the act; and as such, is hereby declared by the Board of Health of this State, together with the Council of Analysts appointed by it, to be the means of determination.

"Saybolt's Electric Tester" shall be used both for determining the fire test and the flash test as indicated by section three of the act, (see chapter 168, laws of 1882.) And the instrument shall be operated in accordance with the instructions for using the "Saybolt Tester," adopted by the New York Produce Exchange, which took effect August 1, 1879, but with this difference: that for oil of 110° fire test and upwards the oil shall (after the first flash) be flashed at 95, 100, 104, 108, 110, 113, 115.

We give the following modified instructions for using the Saybolt Electric Tester for ascertaining the flash and fire test of petroleum and kerosene; and as adopted by the State Board of Health and the Council of Analysts of New Jersey:

#### DIRECTIONS FOR USING THE ELECTRIC TESTER.

Fill the metal bath with water, leaving room for displacement by the glass cup.

Heat the water until the bath thermometer indicates 100° Fahrenheit, at which point remove the lamp.

Fill the glass cup with oil to top line, indicated by the rim surrounding cup, which is  $\frac{1}{8}$  of an inch below top edge of the cup.

See that there is no oil on the outside of the cup, nor upon the upper level edge, using paper to clean cup in preference to cotton or woolen material.

See that the surface of the oil is free from air bubbles before first flash is produced.

Lift the cup steadily with left hand and place in the bath.

Suspend the thermometer with the bulb of same immersed just from view under surface of oil.

Adjust the flashing bar, with the stamped side of the bar facing the operator, immerse the battery zincs in fluid, and when so immersed during the operation they should not come in contact with the carbon plates.

Try for first flash every degree until the same is obtained.

Attain flash by producing spark with one stroke of the key.

The stroke on the key should be such as in telegraphy is used to produce what is called a dot, that is a short quick stroke.



When the thermometer in the oil indicates  $90^{\circ}$ , introduce lamp under the bath, and do not remove it until the operation is finished.

The temperature of oil when placed in bath, should not be lower than  $55^{\circ}$  nor higher than  $70^{\circ}$  Fahrenheit.

The flashing bar must be free from oil before adjusting for test.

Drafts of air must be excluded from the apartment wherein tests are made.

Oil of  $110^{\circ}$  and upwards, shall (after first flash) be flashed at 95, 100, 104, 108, 110, 113, 115.

Oil of  $120^{\circ}$  and upwards, after first flash, 100, 105, 110, 115, 118, 120, 122, 125.

Oil of  $130$  and upwards, every five degrees after first flash until burning point.

The strength of the battery should be regulated by the zincs to produce just sufficient power to obtain continuous sparks.

The vibrator at the left hand side of the induction coil is adjusted by means of a set screw, and should be set so that a continuous spark is the result when the battery is working. Further details can be had of the manufacturers, 62 Beaver St., New York City.

*"An oil which flashes at  $113^{\circ}$  without taking fire is to be regarded, in accordance with these instructions, as having stood a burning test at least as high as  $115^{\circ}$ ; it may have stood a higher one. In general, the fire test of the oil is the degree whose number (in these directions) next follows the degree at which the last flash without ignition of the oil itself took place.*

*"Thus, for oil of  $120^{\circ}$  and upwards, if the flash at  $118^{\circ}$  was not followed by ignition of the oil, while the flash at  $120^{\circ}$  set fire to the oil, the oil would be regarded as having attained a fire test of  $120^{\circ}$ .*

In case of any accident occurring from the *actual explosion* of any lamp or can containing oil, the Local Board of Health should at once procure specimen and evidence as to its source and have the same tested by some competent chemist. Even where accident has resulted from the improper use of oil as in lighting fires the rapid explosion has resulted from gas present in the can or the intense inflammability of the oil.

All cities should employ a local inspector, who, if need be, can be duly authenticated by this board. Besides the oversight of local boards, we shall use proper methods for discovering the qualities of kerosene offered in the market and the sources from which it comes. It is to the interest of all that a safe kerosene be used. Heretofore the production of a poor article has made

an unfair competition, which it is hoped to overcome since life and health are endangered and fair dealing is prejudiced thereby. The following is that portion of the law which relates to the quality of oils and the penalties:

An Act to regulate the sale of petroleum and its products.

1. *And be it enacted by the Senate and General Assembly of the State of New Jersey*, That hereafter petroleum, or any of the products thereof, may only be sold for use within this State under the following regulations and restrictions, viz.: (a) benzole, gasoline, naphtha and benzine must be sold under their true names respectively, and such names must be plainly shown upon the barrel, can, or vessel in which the same are sold, or offered or exposed for sale, respectively, or upon a label securely fastened thereto; (b) petroleum or kerosene which will inflame at a less temperature than one hundred and fifteen degrees Fahrenheit, fire test, or flash at a less temperature than one hundred degrees Fahrenheit, flash test, must have plainly designated upon the barrel, can or vessel in which the same is sold or offered or exposed for sale, or on a label securely fastened thereto, the number of degrees Fahrenheit fire test below which the same will not inflame; (c) only such product of petroleum as will not flash at a less temperature, or flash test, than one hundred degrees Fahrenheit, or such as will not inflame at a less temperature than one hundred and fifteen degrees Fahrenheit, may be sold for lighting or illuminating purposes, except where the same is to be used in street lamps or open-air receptacles, or in gas machines, in which case (as to petroleum or kerosene) there shall be plainly marked on the barrel, can or vessel in which the same is sold or offered or exposed for sale, or on a label securely fastened thereto, the words "not for inside light;" provided, that this act shall not apply to petroleum or its products sold in tanks used for transportation.

2. *And be it enacted*, That if any person shall sell, or offer or expose for sale, for use within this state, except in the manner permitted by this act, any petroleum or product thereof, he shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine not exceeding five hundred dollars, or imprisonment at hard labor or otherwise for a term not exceeding one year, or both; and any sale in quantity less than one barrel shall be presumed to be for use within this state.

The law goes into effect July 1, 1882. The notices thereof as required have been given in the Circular of April 20, and the county notice of June 20, 1882.

By order of the Board.

EZRA M. HUNT, Sec'y.